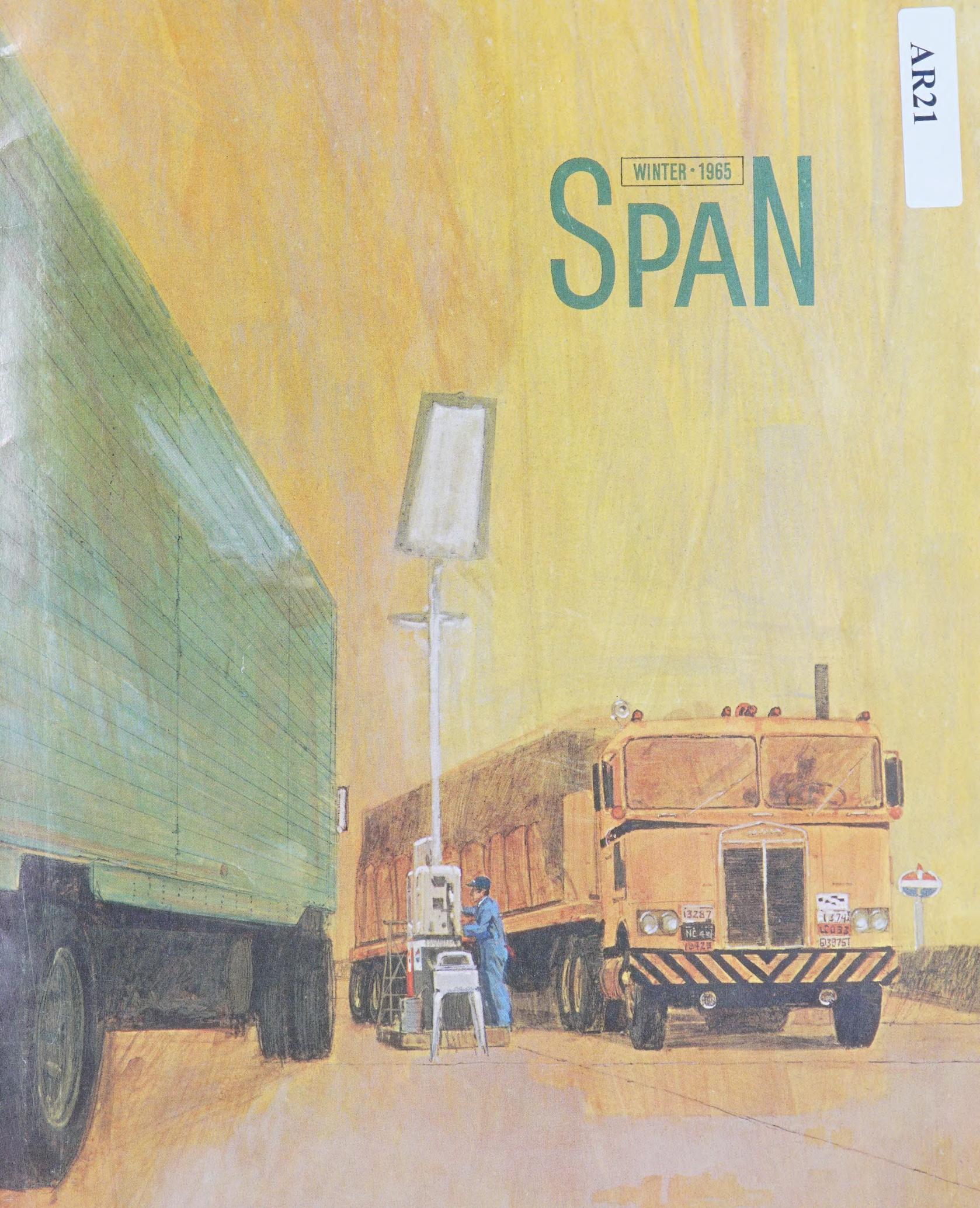
AR21

WINTER · 1965

SPAN



TRUCK STOP • page 1

National Goal: Profitability

MOST of today's corporate employees have never in their lives received paychecks at this time of year without deduction for Social Security taxes.

They have grown accustomed to automatic governmental preemption of part of their earnings, and many accept the idea that they are paying their own way to insure federal retirement and death benefits, or the notion that the government is helping them with "government" funds—neither of which is correct. The vital relationship to employee benefits of corporate earnings and corporate contributions is often overlooked.

It might surprise some of our employees, although I hope not, that more than 30 years before the start of Social Security, Standard Oil Company (Indiana) introduced an employee pension plan. Since this start, the company has substantially improved its retirement plan and added insurance and other plans to aid and protect employees.

These basic company programs are integrated with and go beyond the governmental programs, to which the company also contributes, either jointly with employees, or alone.

No company can continue to provide job opportunities and make contributions for the benefit of employees unless it is a profitable, growing company. Companies do not exist simply to provide paychecks and employee benefits. They exist primarily to make a profit, and it is this process that pays dividends on the investment of stockholders, provides products and services for customers, creates and maintains jobs, offers a market for suppliers, and pays for government.

In our society the corporation has been chosen as the principal mechanism for creating wealth, from which the other benefits flow. It follows that the role of government should include a proper concern for fostering and encouraging private economic growth. Without such growth, we cannot attain our national goals, however they are defined.

Profits have often been maligned, even by those who benefit from them; they nevertheless remain the source of many benefits which flow to investors, customers, employees, suppliers, governments, and the general public.

John E. Swearingen

President

WINTER · 1965

SPAN

Volume V · Number 1

Contents

Truck Stop 1
Automated Gas Production 6
New Boost for Oil Energy 10
Protecting Your Securities 14
Clearing the Air 18
Schooled in Safety 22
Briefs About Our Business 25

OUR COVER

A rapidly growing part of American Oil's business is represented by trucks on the main highways of the U.S. To learn how we're prepared to handle these customers, see the article beginning on page 1.

STANDARD OIL COMPANY
<INDIANA>

Published quarterly for stockholders and employees of Standard Oil Company (Indiana) and its affiliated companies. BYRON L. RICE, *Editor;* R. L. RAHDER, *Assistant Editor.* Address communications to the editor at 910 S. Michigan Avenue, Chicago, Illinois 60680. Printed in U.S.A.

The terms *company, we, our,* and *its,* as used in this magazine, sometimes refer collectively to the parent company and all of its subsidiaries, sometimes to one or more of them. The shorter terms are used for convenience and simplicity.

APR - 5 1965

TRUCK STOP

We get a big share of a huge market by providing special services for demanding drivers

THERE ARE more than 13 million trucks on the road today. They average 36,000 miles a year —about four times the mileage for the average passenger car, and the average truck burns more than twice as much fuel per mile. Each year, trucks consume an average of 6,000 gallons of motor fuel apiece.

While a large proportion of trucks are serviced chiefly at their own terminals, their total consumption at truck stop service stations in 1964 is estimated at more than 12 billion gallons.

"That's a big market, and we're out to capture as large a share as we profitably can," says L. W. Moore, president of American Oil Company.

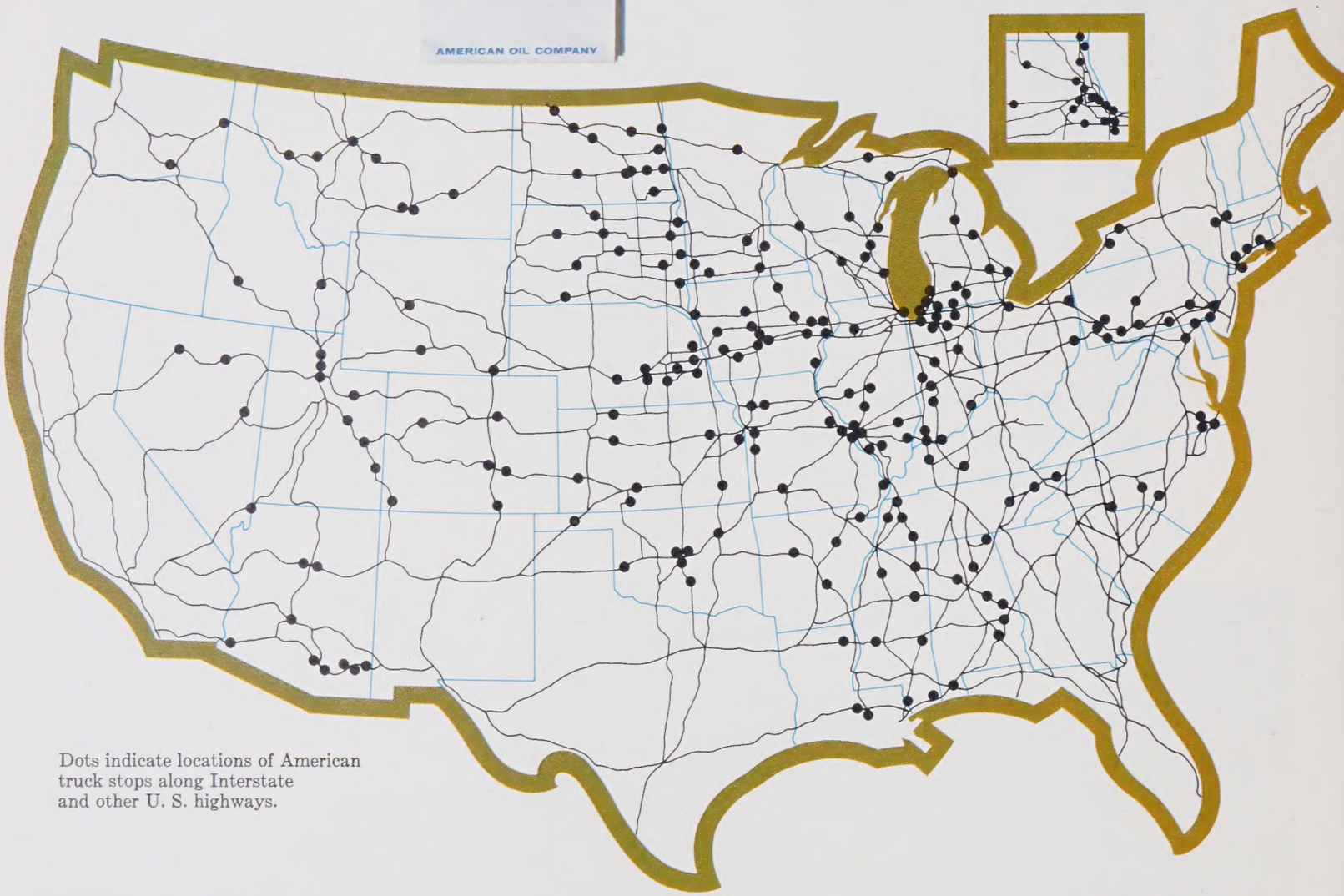
"To do this, the company has become a leader in providing needed facilities for long-distance carriers. The convenient locations of our truck stops on interstate highways, their easy approaches and wide expanses, 24-hour operation, and the broad range of services they offer appeal to long-haul and local truckers in growing numbers each year."

According to *Fleet Owner*, a magazine devoted to trucking and the only industry-wide source of statistics on truck stops, American Oil early last year ranked third in the country in the number

Busiest time of day for Walcott Junction, Iowa, station is 4 to 6 p.m., when trucks are often lined up for fuel and service.

Truck stop guide and pocket directory list American Oil stations and services available at each.

Inset shows our truck stops in area around Chicago.



Dots indicate locations of American truck stops along Interstate and other U. S. highways.

Opened December 15, station near Tulsa on Interstate 44 is prototype for 10 others recently opened, being built, or in planning stage.

of truck stops by brand name. In this listing of 2,218, American had 227. The largest number for any company was 275 and the second, 261. (The fifth company was well behind with 148.)

Truck stops originally were little more than a place to help a driver fill his fuel tank and his stomach simultaneously. *Fleet Owner's* definition has four requisites: 24-hour service, diesel fuel, emergency road service, and food service. William H. Miller, marketing vice president of American Oil, frankly admits that some of the older American Oil outlets had little more than that.

"About 10 per cent still are obsolete by our criteria," he says. "But for the last four years, the company has been upgrading by building or acquiring 20 or more new ones a year and decertifying about the same number of obsolescent ones."

At the start of 1965 we had 242, only two more than three years earlier. But most of these are full-facility stops with convenient approaches, ample parking areas, adjoining restaurant, sleeping quarters, lounge, showers, facilities for tire-changing, minor repairs and tune-ups.

"Truck stops we are now building cost from $250,000 to $500,000 including land," Miller points out. "The minimum recommended area is five acres; sleeping quarters have 12 rooms, and the restaurants seat from 50 to 150. The volumes of their yearly fuel sales will be in the millions of gallons, and in most cases, more than twice as much as that expected from passenger car stations now being built."

The company makes available to drivers and fleet owners a pocket-size special truck stop directory and a larger truck stop guide, with fold-out map, which list each truck stop by state, city, and highway number, indicating extra services available. These include restaurant and sleeping facilities on the premises, general truck service, wrecker road service, steam cleaning, welding, scales, refrigerator repairs, LP-Gas, wet ice, dry ice, teletype service, and freight transfer warehouse.

Attendants at American Oil truck stops are encouraged to give each truck these services: Clean windshields and side windows inside and out; clean all rear-view mirrors; clean and check headlights, tail-lights, and running lights; clean all license and identification plates; thump and inspect each tire for wear, cuts, and bruises; check oil level, radiator, battery, and fan belt, and sweep out the cab. The range of possible services doesn't end there. The pocket directory can't possibly describe the extra facilities offered by many of our independent dealers.

One American Oil outlet, at North Lima, near the first Ohio Turnpike interchange west of Pennsylvania, features relaxation: For livestock there are pens and a grazing area. For the men, there's

Special cage at American Oil truck stop allows attendant to work safely while changing truck tire, a sometimes dangerous task that many stations won't do.

Special Final/Filter designed for filling trucks effectively screens out microscopic contaminants but allows large volumes of fuel to be pumped quickly.

Special yellow credit card designed for truckers assures accurate purchase records, eliminates need for large cash advances, and provides better controls over type and location of purchases.

Ticket-printer pumps are installed at nearly all American Oil truck stops. Exact amount of fuel dispensed is imprinted on invoice.

Part of 11-point truck service checklist is cleaning of all windows. For trucks, this requires a stepladder.

a golf putting course and driving range, a go-kart track, a doctor on call, a notary service for drivers' paper work, a lawyer if needed, and a rabbi nearby to see that shipments of kosher meat are kept ritually clean in case of delay. If all this isn't enough, there's a free courtesy car to take customers to Youngstown.

In North Carolina an American Oil luxury motel for drivers has trampolines, baseball cages with automatic pitchers, and a telegraph desk.

Barber shops, laundromats, dry-cleaning machines, and PX-type stores are common.

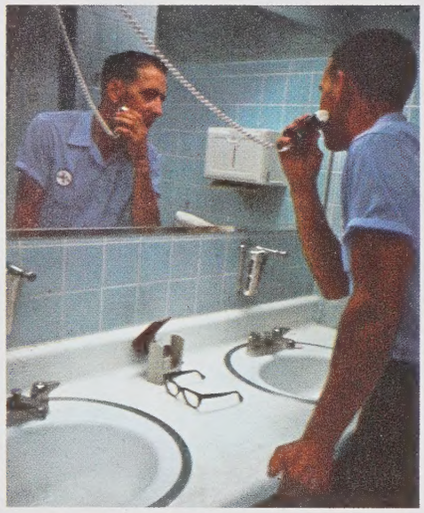
James L. Shaeffer, new business coordinator for American, sums up the purpose of such services this way: "The average over-the-road truck driver is a solid citizen. He has better than average education and far better than average income. He demands the best for himself and his truck. 'Flagging' him down with signs and attractive stations is important. But we are also concentrating on winning whole new fleets of trucks through new and expanded services."

One such service is a distinctive yellow credit card that can be used to buy all merchandise manufactured or distributed by American Oil. The driver is spared the necessity of carrying a large cash advance for motor fuel. For the fleet owner, it offers several advantages: Centralized billing for accurate tax records; an option of leaving the cards permanently with specified truck stop dealers, rather than issuing one to each driver; use of our truck stop stations as a driver's check point, and use of a ticket printer installed on the pump, so there is no question about the amount or type of fuel delivered.

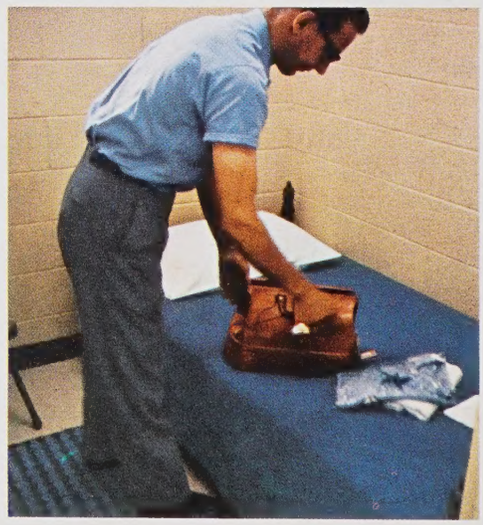
By having instructions embossed on the card,

Registering for a room at stop on Interstate 80, contract hauler Charles Schell pays $2.50. Larger rooms cost $4.

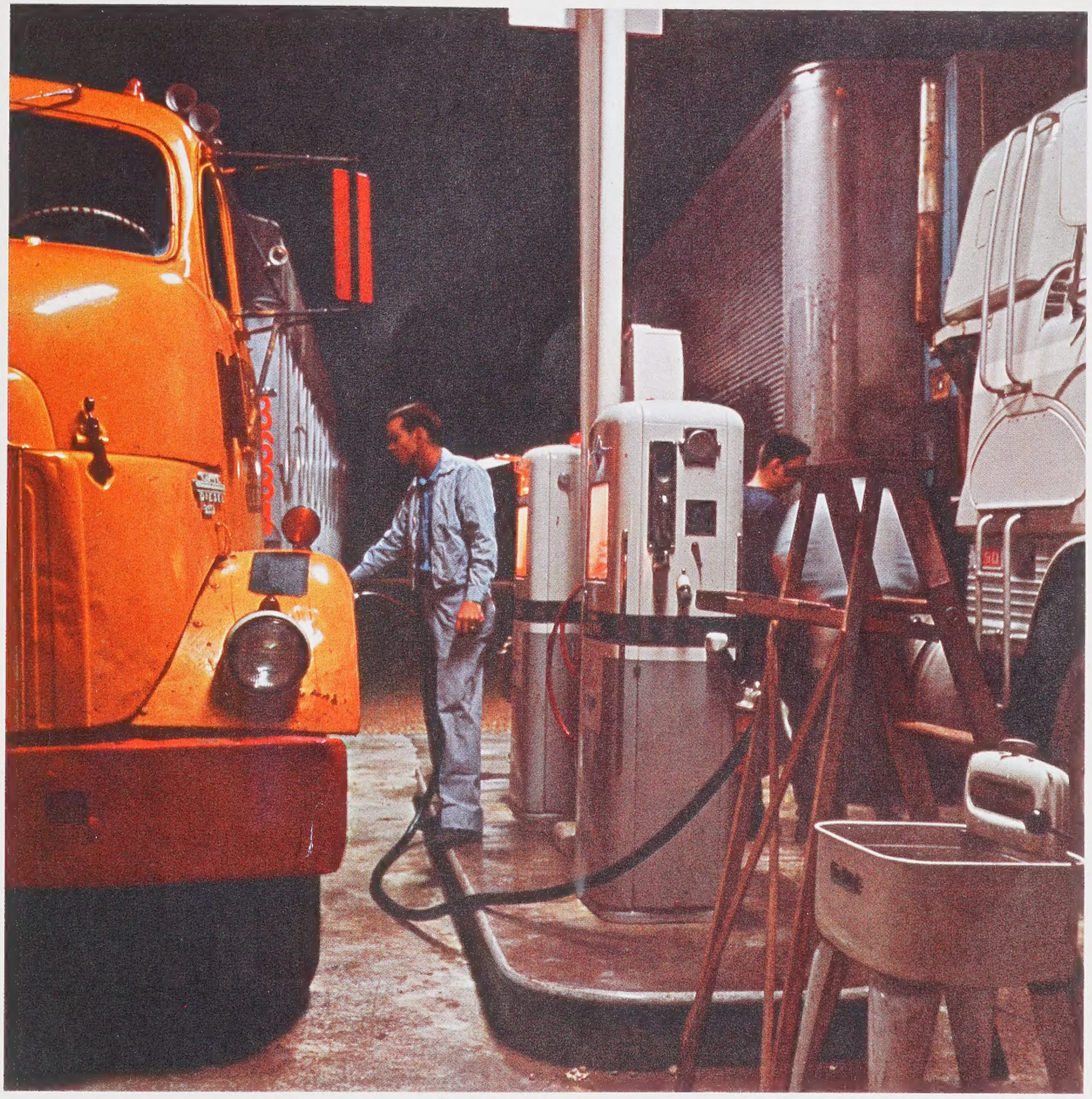
Good food, good rest, shower, shave, and truck service, all available in one stop, prepare Schell for another leg of long trip.



Typical of new American Oil truck stops, this restaurant at Minot, N.D., station features quick service and tasty food in clean, modern surroundings.



Nothing fancy, but clean, comfortable, and air-conditioned is this sleeping room. A TV lounge is also available for relaxing truck drivers.



Open 24 hours a day, this truck stop has a peak period from 11 p.m. until after midnight. Grey pumps deliver American Premier Diesel Fuel. Average truck fill is 60 to 70 gallons.

the fleet owner may also control the location and type of purchase. The limitation might say, "Good for diesel fuel only" or "Good only at T/S #66 & 21" or "Use ticket printer pump."

Special decals are also available for each fleet unit, identifying it for yellow-card service and specifying the type of fuel used. This is the fifth year of existence for the special yellow credit card. Each year the level of purchases has increased. Currently, 1,565 fleet customers have yellow credit card accounts.

Each of them receives price protection somewhat similar to that American Oil offers to home fuel oil customers. If the suggested retail price falls below the contract price, the fleet owner receives the benefit of the lower price. His drivers use their yellow credit cards to purchase fuel at our truck stops under the contract terms.

Are passenger-car drivers welcome?

"Certainly they are," replies Vice President Miller. "While the individual passenger-car motorist is usually not as big a customer as the trucker, he is far more numerous and easier to service. So he shouldn't hesitate even though an American Oil station carries a big 'Truck Stop' sign. If he follows the old road-wise motorist's idea of stopping where the trucks stop, he'll get top quality products and service from people who serve the most demanding customer of all.

"And, from an economic point of view, the combination of truck and passenger car business results in lower unit costs and a better payout."

Engineer climbs tower at automated South Jennings gas processing plant. "Fish-eye" camera lens provides 180 degree view.

Automated Gas Production

Computers and automatic devices cut costs, improve profits; 3 Louisiana locations illustrate 2 of many systems in use

South Pecan Lake and Little Pecan Lake fields are in marsh cut by network of canals. One of the 20 wells on electronic control can be seen on clam shell pad, near canal intersection. Structure to right of well helps recover liquids from gas.

THE NATION'S FIRST fully automated gas-field production system is successfully operating two fields in the marsh lands of southwestern Louisiana. The unit controls daily production averaging 117 million cubic feet of gas and 1,100 barrels of condensate (light crude oil).

It does this job on about one-third of the electricity needed for a household toaster or fry pan.

At another gas field a few miles away, a fully-automated system, almost identical to the first, controls daily production of 120 million cubic feet of gas. Two natural gas processing plants in the same area also use an electronic system.

All three systems, in the Lake Charles producing area, are owned and operated by Pan American Petroleum Corporation, our North American exploration and production subsidiary. The electronic systems demonstrate that important cost savings and improved profitability and safety can result from automation, when practicably applied.

Increased revenues made possible by use of the new automated systems totaled about $300,000 in the first 18 months of operation.

The first of the two gas producing systems was installed in the South Pecan Lake and Little Pecan Lake fields, whose 20 wells protrude above clam shell mounds built for them in the marsh. A 20-mile network of canals provides the only access to the wells and other field installations; boats are needed for routine operations.

Of the 20 wells, 12 produce gas from two separate producing formations, making 32 completions. Other gas wells in two nearby fields will be connected to the producing system later.

"The most important feature of the transistorized system," explains Area Superintendent Orville Gaither, "is that the wells begin responding in a matter of seconds to any change in gas volume requested by the gas purchaser, Columbia Gulf Transmission Company. Complete adjustment to the new rate follows quickly. Improved service and increased production have resulted."

The electronic well-control system includes the usual monitoring and information transmission devices that regulate and report gas production. It also performs unique intelligence and work functions. In effect, it has sensory and motor nerves and muscles. Here's how it operates:

The 32 well completions are linked by 15 miles of electrical cable to a master control unit and

recording station. Buried 30 inches deep in the marsh mud, the tough cable withstands hurricanes, shifting mud, and gnawing rodents.

The master controller and recording station are on a low mound in the marsh called Tank Battery Island, where a condensate recovery unit and storage tanks are also located. Another cable joins the master controller to a master meter station at a point where gas enters the pipeline system. Delivered gas volume is measured here.

When Columbia Gulf requests an increase or decrease in gas, our employee at Tank Battery Island dials in the new flow rate at a "set-point" controller. Automation then takes over.

Signals go out to each well completion unit. At each, a rudimentary "brain" component receives the signal to open or close a variable well valve, increasing or decreasing the flow of gas.

After the well valve is reset, the tiny "brain" unit feeds back a "work completed" signal to the master controller, which then proceeds one-by-one with orders to the other wells.

Besides its "cerebral" ability, the system has an extensive information-gathering and reporting network that continuously records the volume of gas delivered to the pipeline and the production rate of each well unit. The master controller promptly reports any well malfunction, and automatically increases production from all other wells to make up for any that are shut down or producing at restricted rates.

"Before automation," says Gaither, "it took three hours to shut the field down and at least 11 to open it up again and adjust the flow. Now, it takes 65 minutes to shut it in and 75 minutes to open it up to the desired flow."

Not far from South Pecan Lake and Little Pecan Lake fields, two automated gas processing plants also provide improved efficiency and savings. Besides equipment that allows them to virtually operate themselves, the South Jennings and South Thornwell plants use a monitoring or "tattle-tale" system as a key factor to augment automatic controls. The plants are also identical in design (except for one auxiliary unit at South Jennings) enhancing efficiency in operation, maintenance, repair, and the training of operating personnel.

The electronic system consists of cables that connect every major unit in each plant (pumps, compressors, and the like) with a "tattle-tale" panel in each plant. Each panel monitors 25 or

One of many mounds, or *cheniers*, of high ground in marsh, Tank Battery Island supports oaks, grass, and cane, plus three pet pigs, alligators, and aquatic rodents. It also contains distillate stabilizer unit (tall towers), master electronic controller for two fields, distillate storage tanks, and docks for boats and barges.

more units in its plant. The two panels are connected by leased wire. A man at either plant can keep tabs on the other plant, 25 road miles away.

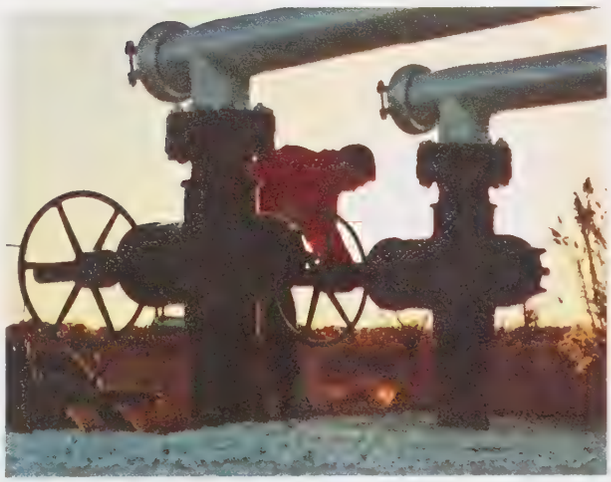
For instance, if anything goes wrong with a unit at South Thornwell, a red light designating that unit flashes on the panel at South Jennings. Any subsequent failure of other units shows up as a white light. An alarm goes off, too.

The plant operator checks the panel, then drives to South Thornwell, reversing the panel there to monitor South Jennings. Then he checks the unit that first failed at Thornwell. On each unit is still another annunciator, across the face of which are printed common failures. Lights glowing on this annunciator indicate the specific trouble, thereby allowing speedy repairs. Only four men are needed to operate both plants around the clock.

"Automation can save money and increase profits, as it has in these and other company installations," says F. R. Yost, president of Pan American. "But the equipment is also expensive, and not all facilities are adaptable to automated equipment. We regard automation as a tool like any other tool. We buy it only if it helps us do our work more safely and more profitably."

Large Christmas tree on well (foreground) is typical of South Thornwell field, which produces gas from depths of 12,000 to 15,000 feet at pressures up to 12,000 pounds a square inch. South Thornwell plant, background, processes and helps recover gas liquids produced by 20 wells in field.

Operating Engineer Henry Clay shows "tattle-tale" panel in South Jennings plant. Panel monitors 25 units at identical South Thornwell plant, 25 road miles away. Lights on panel glow to indicate malfunctioning units. Panels at both plants allow one man to operate both.



L. M. (Corky) McMillion, field foreman, checks valve at point where Little Pecan Lake and South Pecan Lake gas enters pipeline for transport to consuming centers. Electronic device over a mile away controls production from both fields and measures gas produced.

Bergan high school, Peoria, Ill. generates all its own utility needs from a diesel Total Energy system.

Brother Jude, building superintendent, stands near three diesel-electric units in Bergan school basement. School's utility costs were cut by $12,000 the first year.

New Boost For Oil Energy

New Total Energy systems broaden market for petroleum fuels, cut utility costs, open new market for us

IN LATE JANUARY, 1965, rain and freezing temperatures coated 7,000 square miles of northern Illinois with ice. Electric utility lines snapped under the weight, and some 200,000 homes and thousands of businesses were without electricity or heat from several hours to several days.

But operations were normal at American Oil Company's two Lake Forest Oasis service stations on the Illinois Tollway, northwest of Chicago. Though they were in the middle of the hardest-hit area, the lights never went off, the pumps ran without interruption, and the buildings were warm, as usual. Neither station depends on electric utility power; all electricity and much of the heat are provided by two diesel-engine-driven generators housed in one of the stations.

The on-site generation of electricity, coupled with the use of engine heat for hot water needs and for keeping rooms warm or cool, is called "Total Energy." It is an old idea that only recently has become widely feasible, and is opening what the trade newspaper, *Oil Daily*, calls "the largest single market potential (for petroleum) since the development of the automobile."

Dependability—no matter what the weather—is only one benefit of Total Energy. Its greatest merit is its proved ability to cut electrical, heating, and air conditioning costs for users substantially. Total Energy systems are now used successfully in office and apartment buildings, schools, motels and hotels, shopping centers, large service stations, industrial and agricultural plants, and similar installations. Five years ago, there were probably fewer than 10 Total Energy systems in commercial or institutional establishments in the entire nation. Now, there are at least 150, and the number is steadily increasing. Total Energy systems are feasible for tens of thousands of business and institutional buildings. Only individual homes and very heavy industry are, as of now, not feasible for Total Energy.

The diagram on page 11 shows how Total Energy works. George B. Prout, staff director of American Oil Company's new product development division, explains the system:

"Total Energy employs either diesel, natural

Nation's first diesel Total Energy system was installed in 1947 at Stateline Motel, in remote town of Wendover, Nev.

gas, or LP-gas engines or turbines that turn generators to meet the electrical needs of an installation. Most of the heat from the engines provides either space or industrial process heating or both, as well as air conditioning and hot water. No outside electrical utility connection is required."

Total Energy is feasible today for establishments whose electrical consumption ranges from 40 kilowatts (a large service station, for example) to 5,000 kilowatts.

"The range covers about 20 per cent of the nation's commercial and industrial consumers," says Harald A. Birkness, American Oil project engineer in the new product development division. "The Total Energy share of that could increase sales of diesel oil by at least 2.5 billion gallons a year."

American Oil is taking the lead among oil companies in going after the new Total Energy market. Our company was the first to install a system at one of our own facilities, and the first to carry out technical and economic studies to sell oil-fueled Total Energy. The studies have helped open the Total Energy fuels market, and contribute to its growth.

American Oil's application of Total Energy at its own facilities is increasing. All five of our Illinois Tollway service station locations will be powered and heated by Total Energy systems by 1966. Late this summer, when American Oil's new auto service center opens on Chicago's south side, a diesel Total Energy system will supply all energy needs. Our Detroit region office building is expected to convert to diesel Total Energy late this year. Studies are under way for conversion of other facilities, and installation of Total Energy systems at new company facilities to be built.

The company also supplies fuel oil and lubricants for Total Energy systems installed or being planned by several customers. These include a soft drink bottling plant in New Haven, Mo., and two Illinois schools. We supply fuel for the nation's oldest diesel Total Energy system, the Stateline Motel and associated facilities at Wendover, Nev., in operation since 1947. American Oil is assisting in feasibility studies for Total Energy systems at several Midwest schools, cheese and milk plants, bottling plants, and other commercial and industrial establishments.

"Besides greater dependability and convenience equal to purchased electrical power, Total Energy's outstanding advantage is in savings," explains John B. Durant, American Oil project engineer, new product development division. "Energy costs can be cut by 50 per cent or more. Although the original investment in equipment averages about $100 to $180 for each kilowatt of installed power for a diesel system, this cost is usually amortized in four to eight years. Our studies show that the gross return on investment for Total Energy is usually greater than 15 per cent a year."

A typical example of Total Energy benefits, as compared with purchased electric utility power,

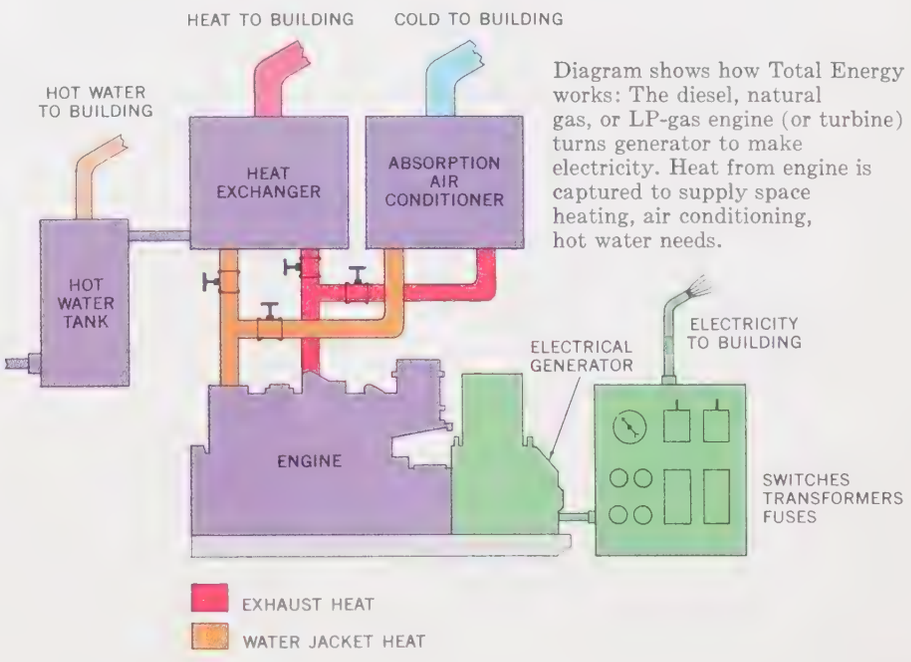


Diagram shows how Total Energy works: The diesel, natural gas, or LP-gas engine (or turbine) turns generator to make electricity. Heat from engine is captured to supply space heating, air conditioning, hot water needs.

Two diesel engines, above, supply all electrical, and most heating requirements for American Oil Company's two service stations at the Lake Forest Oasis, northwest of Chicago. The system is the first of several planned by American Oil at service stations and other company locations.

Bright station lighting at Lake Forest Oasis, plus all other electrical needs are supplied by two 85-kilowatt diesel engine-generator sets. Electrical and heating costs were cut over $4,000 annually. System will pay out in 6.5 years with gross rate of return on investment about 15 per cent a year. Economies for new installations designed for Total Energy will be even more favorable.

is Bergan High School, Peoria, Ill. It is one of five Total Energy schools operated by the Brothers of Christian Schools, who have six more planned.

Bergan's system consists of three diesel engines, two for normal operation and one for standby, generating an average of 135 kilowatts of electricity. Exhaust and water jacket heat from the engines go to heat exchangers and an absorption air conditioner, to heat or cool the 32 classrooms, eight laboratories, cafeteria, gymnasium, auditorium, library, office, chapel, and faculty quarters —129,000 square feet of floor space.

Says Brother Joel Damian, FSC, auxiliary provincial of the Christian Brothers: "Our average monthly costs at Bergan are $1,000 for utility needs. Had we purchased power instead of making our own, the cost would have been at least $2,000 a month. The difference of $12,000 a year will, in a relatively short time, amortize the $65,000 extra cost of the Total Energy system. After that, we will have annual savings of $12,000."

Bergan's Total Energy system, in the school's basement, is noiseless, smokeless, vibration-free, and completely dependable. American Oil supplies fuel for Bergan and for Costa high, another Christian Brothers Total Energy school at Galesburg, Ill.

American Oil's program of converting several of its own facilities to Total Energy requires in all cases that the new systems show a significant savings over alternate energy sources. The first company Total Energy location, the Lake Forest Oasis service stations on the Illinois Tollway, is the first installed by any oil company at its own commercial facility.

The complete 170 kilowatt system cost $27,300,

American Oil Company's Texas City refinery is virtually free of dust and smoke. Our company and the industry have taken vigorous, expensive action to prevent refineries from adding to objectionable smog.

Striking changes in oil industry refinery units and methods have virtually halted release of contaminants, as contrasting photos demonstrate. Black and white photo, above, shows rows of old stills at Whiting. Color photo shows a modern pipe still at same refinery. White plumes from new unit are steam, harmless, but sometimes confused with smoke or dust emissions.

residential furnaces and incinerators, and even burning leaves in the back yard every fall. A recent U.S. Senate subcommittee report included a statement by Dr. Richard Reese of the Colorado Air Pollution Advisory Committee that air pollution in Denver broke down as "roughly 40 per cent due to the automobile, maybe about 30 per cent to industries, and 30 per cent to domestic sources—heating, backyard incinerators, dumps, and so forth."

The comfortable enjoyment of life and conduct of business is difficult in Los Angeles, according to radio and television personalities who have for years found the city's "smog" a basis for wry humor. Los Angeles is located in a bowl or basin, hemmed by mountains to the east, north, and south and by the sea on the west. On-shore breezes are trapped against the mountains, and contaminants build up. At the same time, the brilliant southern California sunshine reacts with nitrogen dioxide in the air, chiefly from auto exhausts, forming oxidants that react with other components of exhaust gases to form what is called "photochemical" smog. To make things worse, the area is subject to frequent temperature inversions—warm air at upper levels prevents the polluted air below from rising, thereby preventing good "ventilation" of the area.

Another kind of air pollution is called "London type." It results from foggy weather and stagnant air heavy with small particles from burning coal. London is also subject to temperature inversions. Again, the upper air layers form a lid on the polluted air at ground level.

These are two prominent and extreme types of air pollution or smog. The Los Angeles type causes discomfort to the eyes. The London type, in its rare worst manifestations, has been blamed for deaths of hundreds of people already suffering from heart, lung, and other diseases. However, to assume that one or the other of these types is actually present in every locality is a dangerous generalization. Most communities escape objectionable air pollution because they are ventilated by prevailing winds and are virtually free from temperature inversions. Climate, air, and other factors occur in infinite variety, and communities differ in respect to air pollution or absence from it. Further, there is disagreement among medical authorities even as to the magnitude of effect of air pollution upon human health. All agree a great deal of research is needed.

To get cleaner air, people have for years resorted to governmental controls. Chicago's smoke and fumes ordinances of 1881 may have been the first in the U.S. But the major increases in laws began in the early and middle 1940's in cities such as St. Louis and Pittsburgh, where industrial

pollutant sources in particular were curbed. In 1950, Los Angeles County adopted a program that has since become the most extensive anywhere. Early ordinances there against "London type" smog produced virtually no improvements, but led to the identification for the first time of photochemical smog and its chief causes: Sunshine, automobile exhausts, temperature inversions, and topography. With this knowledge, Los Angeles has vigorously pursued cleaner air.

The federal government has been interested in air quality for many years. In December, 1963, federal power to an unprecedented degree was authorized by the Clean Air Act. It gives authority to the Department of Health, Education, and Welfare to intervene in cases of objectionable interstate air pollution, and, if invited, to assist any city or state with control measures. The U.S. Public Health Service administers the program, and has been authorized to spend an average of $30 million a year in the next three fiscal years on air pollution research and on grants, on a fund-matching basis, to encourage states and communities to engage actively in control of air pollution.

The result has been a proliferation of new laws and proposals. This year nearly all the 47 states that will hold legislative sessions are expected to consider air pollution control legislation. In 1963, the last "major" legislative year, more than 200 such bills were introduced. Air pollution control was emphasized by the President in his State of the Union message to Congress in January and repeated in legislative proposals in February.

The impact of air pollution regulations, local, state, and federal, will affect individuals, industries, and governments. All contribute to air pollution, and all must face the costs and other problems associated with control and correction.

The oil industry has long supported efforts in behalf of cleaner air. For more than 30 years, individual companies and the industry, acting through its trade association, the American Petroleum Institute, have voluntarily carried out research and control measures. According to a survey by a trade publication, the industry spends about a million dollars a year on research alone, and another $15 million to $20 million a year on control equipment and procedures. In addition to research and control measures, the industry has steadily improved the quality of fuels. Combustion efficiency has also been upgraded, a factor vital to conservation of clean air; efficient combustion produces harmless carbon dioxide and water. The industry has also reduced substantially the levels of potentially contaminating materials in fuels it makes.

"Like the oil industry generally, American Oil Company carries out effective controls to keep its own operations clean and to assure the manufacture and sale of products that will help conserve clean air," says C. Russell Lockwood, American Oil attorney and chairman of the company's air pollution control committee.

"Potential contaminants from refining fall into two classes," explains R. C. Mallatt, American Oil's superintendent of technical service at the Whiting refinery. (He is also chairman of the API's Research Advisory Committee on Air and Water Conservation.) "One class includes dusts, the other gases, fumes, or vapors. We use different methods to control them.

"Part of the dusts are in the form of finely ground catalysts such as silica-alumina, used in the manufacture of gasoline. Coatings of coke must be burned off the catalyst particles after they pass through the oil cracking reactor. The coke is burned in a regenerator, and the normal combustion gases escape, carrying small amounts of the catalyst dust. In turn, the dust is trapped by centrifugal 'cyclone' units or by electrostatic precipitators.

"To prevent the escape of vapors from light stocks in storage, we eliminate the vapor space in product storage tanks by using floating roofs.

"To control noxious gas emissions, we apply both special devices and operating techniques. Most crude oils and products made from them contain some sulfur, a potential contaminant. We lower the sulfur content of many of our products by special processing. At Whiting and Yorktown even the fuel gas we burn in the refinery furnaces is desulfurized. Sale of the recovered sulfur helps pay for the sulfur plant.

"The burning of fuels in refinery furnaces is carefully controlled to prevent the escape of smoke or objectionable gases. Vapors from our largest catalytic cracking processes are passed through waste heat recovery units to insure efficient combustion and removal of objectionable vapors. In addition to these measures, all new units and modernized older units at our refineries are designed to minimize the accidental escape of objectionable materials."

Beside participating on several API committees, our people seek to cooperate with state and local air pollution control agencies and other organizations interested in promoting cleaner air.

Says American Oil President L. W. Moore: "Our company has long recognized the need for effective air quality conservation. We will continue to work for effective control measures in the public interest, consistent with the best impartial scientific knowledge of air pollution.

"We want clean air. We pledge a continuing effort to do everything effective and practical to get it."

American Oil's new program in support of driver education helps young people to become better drivers, and introduces them to our company

Students at Naperville, Ill., Community High School were among the first to receive American Oil's new film program. Students and instructors of the training course hold outdoor class session on the lawn of the city museum.

WHEN DAD was a teenager learning to drive, his car had about 60 horsepower and was one of 30 million motor vehicles on the nation's streets and highways.

Today, his teenage child learns to drive a car with three to five times more horsepower on highways carrying more than 82 million motor vehicles.

It's apparent that training competent drivers is both more important and more complex than when Dad first lurched along a secluded country lane in the family car years ago, while his father shouted instructions and, perhaps, epithets.

American Oil Company, our nationwide marketing subsidiary, is helping young people to become assured, safe drivers. American Oil's program, inaugurated in 1964, follows a tradition of youth programs supported over the years as an aspect of our corporate citizenship.

Although the chief goal of the new program is to assist driver-education instructors to develop safe, competent drivers, the project also serves to introduce the young motorists, and future customers, to American Oil. Teenagers constitute one of the fastest growing portions of the population, and represent much of the company's future business.

Today, some 1.4 million teenagers across the nation are enrolled in driver education programs offered at more than 12,000 high schools. Driver education has conclusively proved its value in producing skilled, safe young drivers. Its effectiveness is emphasized by the fact that many insurance companies, including our subsidiary, Imperial Casualty and Indemnity Company, offer

reduced rates to young drivers who have successfully completed driver education courses.

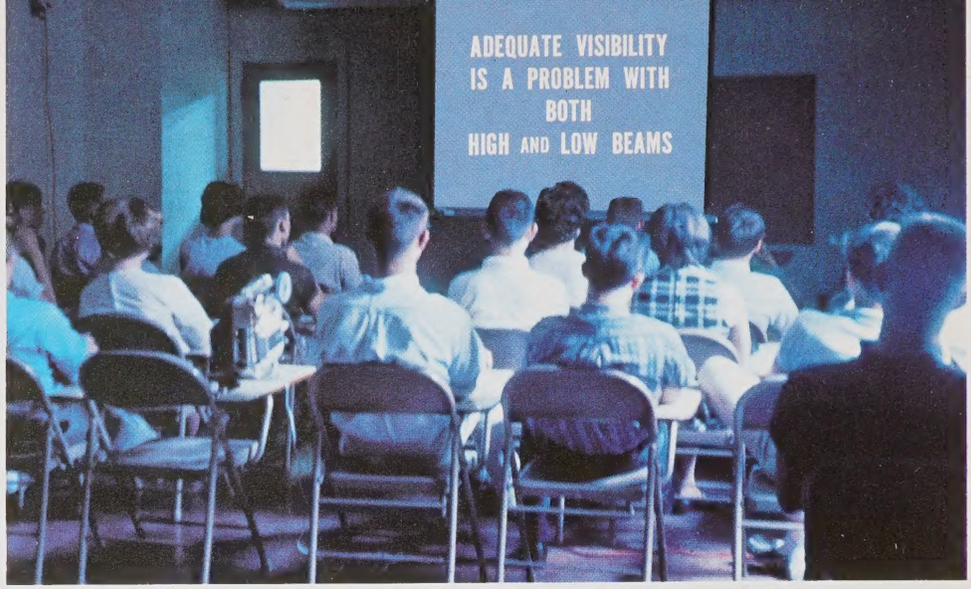
Our new program—"Schooled In Safety"—is a special supplement to the national program, and centers on eight movies produced by American Oil, under the direction of the National Committee on Safety Education of the National Education Association. The eight films allow teachers to show, on the screen, important aspects of driving that they could not practicably demonstrate in class discussion or on the road.

Each movie is about five minutes long. The topics discussed include how to cope with highway emergencies, how to drive on urban superhighways, how the brakes and "power train" of a car work, and what physical forces and laws are involved in operating a car. The film program includes a manual to assist the teacher and a special booklet on safe driving for the students, called "Tips From Pro Drivers."

The films tie in directly with existing driver education textbooks and teaching schedules. They can be shown in the conventional way, with an 8-millimeter projector, or can be purchased in plastic cartridges that snap into a special, low-cost projector, allowing continuous showing without rewinding. In the cartridge, the film can be easily stopped at any point for special classroom discussion. Eight-millimeter, rather than 16-millimeter, film was selected to reduce

Students smile for cameraman as they pose with Naperville's chief driver education instructor, Don Blount. Film program for school was donated by American Oil dealer Clarence Eddy.

The eight special movies were produced by a professional Hollywood studio, under supervision of the National Committee on Safety Education, National Education Association.



Naperville students watch film that discusses night driving, its hazards, and how to avoid them. Other films show how a car operates, physical laws affecting driving, and other subjects.

Helicopter was used by cameraman for one of eight films, a discussion of proper driving techniques on urban superhighways.

American Oil film "package" includes boxed films, in plastic snap-in holders, and two booklets. Film snaps into new type projector, rear. Other films are made for conventional projection equipment.

the cost of the films and the projection equipment to show them. However, 16-millimeter sound films are available to schools that prefer this size. Black-and-white rather than color film is used, to further reduce costs.

The "Schooled in Safety" program is administered by American Oil, which distributes the package—films, teaching manual, and student booklet—directly to the schools, at cost, $39.50 for 8-millimeter, or $74.50 for 16-millimeter. Brochures describing the program and offering it to schools have been mailed to high schools throughout the nation, supplemented by advertising in national educational publications.

The program began on an experimental basis in four Midwestern states early in 1964. By special request of the schools, it was also provided by American Oil dealers to LaMarque and Texas City, Tex., schools. Educators liked the program so well that it was extended nationwide in August. Since then, it has enjoyed a continuing excellent response, and 635 film sets are now used in 27 states. Schools in other nations have requested information about the program.

"The proved worth of driver education in the nation's high schools was the main reason we decided to support it with our own special film program," explains L. W. Moore, American Oil's president. "Our long-standing support of automobile safety and youth programs tied in perfectly with our new film package."

Educators have voiced high praise for the film package. Dr. Norman Key, executive secretary of the National Committee on Safety Education, said the films are "a new concept in visual presentations for enrichment of the instruction in driver education. They enable students to learn more effectively the basic understandings and techniques which later will mean the difference between intelligent, safe traffic behavior and aimless guessing."

BRIEFS
about our business

100th West Coast Station Opened

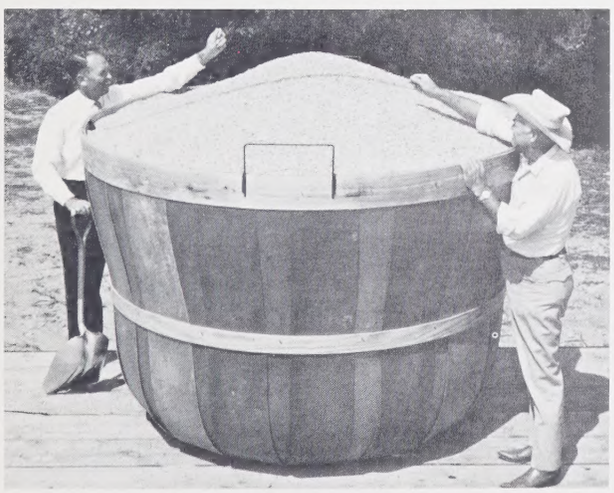
American Oil Company has opened, in Seattle, its 100th new West Coast service station in four years as part of a long-range program to develop coast-to-coast services and facilities.

Amoco 120 Tire Improved

A new, improved Amoco 120 Super Premium automobile tire—already the strongest ever developed—is being marketed by the American Oil Company. Incorporating new materials and manufacturing techniques developed since the original tire was introduced three years ago, the new tire has improved safety, tread wear, traction, rideability, and durability.

Improvements include use of low cord angles, thinner, cooler-running nylon fabric, stronger nylon cord, a 20 per cent deeper tread, new wrap-around shoulder design, increased tread width, stronger and more efficient heat resistant materials in the concentric ribs on the shoulder, an especially heavy-duty black rib rim, and a new tread design.

One Acre of Corn



Super bushel basket, holding 254 bushels of shelled corn, was built to salute the Cisne, Ill., Future Farmers of America, who produced a record yield of 254 bushels on one acre, using a balanced fertilizer program. Basket was displayed in a fertilizer exhibit of the Schrock Division of our subsidiary, Tuloma Gas Products Company.

Oil and Gas Discoveries

Pan American Petroleum Corporation completed its second high-potential Cache field well, flowing at a rate of 2,091 barrels of oil a day in Montezuma County, Colo., in the Four Corners area. We have 75 per cent interest in this and the discovery well, one-half mile northwest, completed recently for 1,434 barrels daily.

Other recent oil and gas discoveries, and our interests in them, include:

A half-interest (with Midwest Oil Corporation) in a dual discovery in Grayson County, Tex.

A 55 per cent interest in a high-potential well in the Wescott field, Gaines County, West Texas, dually completed. Our discovery well in this field was completed in August.

Full interest in a dual-zone gas discovery in Latimer County, Okla.

One-half interest in a wildcat on a 3,110-acre lease off the shore of Iberia Parish, La., completed as a shut-in oil and gas well.

Chemical Plant Planned

Amoco Chemicals Corporation said a new plant to make 200 million pounds a year of dimethyl terephthalate and purified terephthalic acid will be built in 1965-66 near Decatur, Ala. These products are raw materials in the manufacture of polyester fibres and films.

One-Stop Farm Service Centers

American Oil Company is opening new one-stop farm service centers at Carroll, Iowa; Albert Lea, Minn.; Beatrice, Neb.; Greenville, Ohio, and Yakima, Wash. Staffed with service managers and agronomists, the centers will stock petroleum products, agricultural chemicals, fertilizers, anhydrous ammonia, and LP-gas.

One Offshore Platform—13 Wells

Pan American Petroleum Corporation recently drilled 13 successful wells from its self-contained platform in the West Delta Block 90 Field offshore Plaquemines Parish, La., resulting in a gross producing rate over 3,000 barrels of oil a day.

Safety Records Cited

American Oil Company has conferred awards at seven locations for outstanding safety performances. Refineries at El Dorado, Ark., Baltimore, Md., and Savannah, Ga., had no lost-time accidents for 1963 and 1964. Refineries at Casper, Wyo., Sugar Creek, Mo., and Neodesha, Kans., and a department of the Atlanta marketing region had no lost-time accidents in 1964.

STANDARD OIL COMPANY
< INDIANA >
910 South Michigan Avenue
Chicago, Illinois 60680

Towboats and barges move along Intracoastal Canal through marshland of southwestern Louisiana.
In the distant background, our automated system produces gas from two fields. Article begins on page 6.